

- 1 a Draw an arrow on the diagram to show the force of friction on the car.
Label it *friction*.

- b Draw an arrow to show the weight of the car.
Label it *weight*.

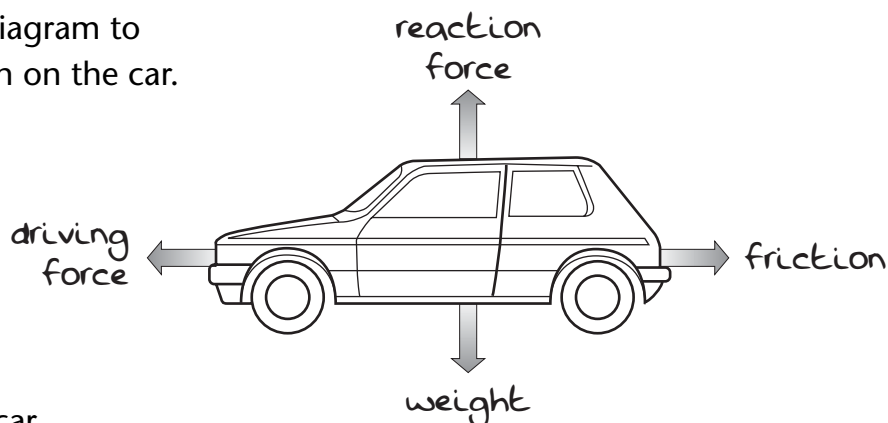
- c Draw an arrow to show the driving force of the car.
Label it *driving force*.

- d Draw an upwards arrow equal and opposite to the weight.
Label it *reaction force*.

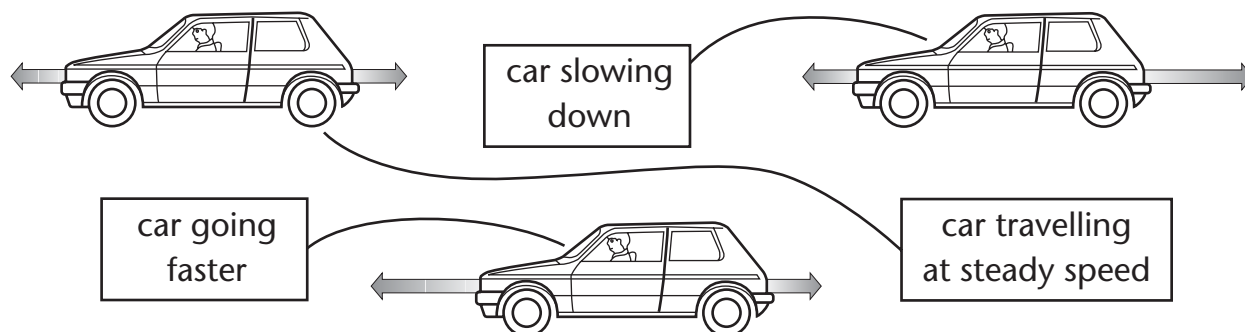
- e What would happen if the reaction force was less than the weight?

The car would sink.

- f Is it possible for the reaction force to be more than the weight? No



- 2 Draw lines to match the descriptions to the diagrams.



- 3 Write *true* or *false* for each statement about mass, weight and gravity.

- a Mass is a measure of how much stuff something is made of.

true

- b Gravity is a measure of how much something weighs.

false

- c Gravity and mass are forces, weight is not. false

- d The weight of something on Earth (in N) = mass (in kg) $\times 10$.

true

4 Complete the sentences by choosing from this list.

50 N

500 N

5000 N

50 kg

500 kg

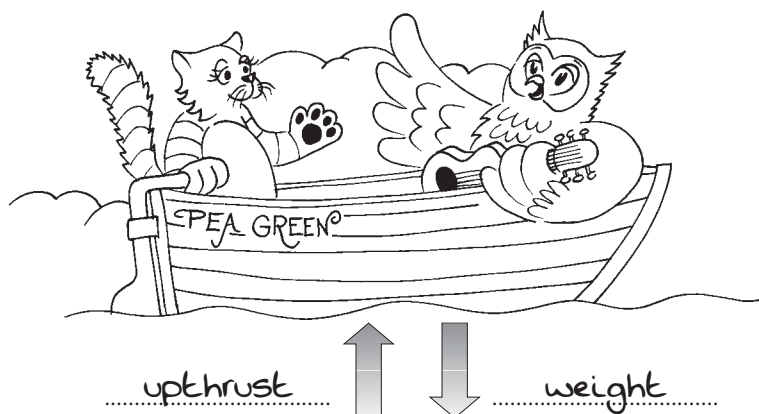
5000 kg

- a Mark has a mass of 50 kg. His weight is 500 N.
- b His motorbike weighs 5000 N. It has a mass of 500 kg.
- c His helmet has a mass of 5 kg. It weighs 50 N.

5 Write *balanced* or *unbalanced* to describe the forces in each of these situations.

- a A sprinter as she leaves the starting block unbalanced
- b A lorry cruising along the motorway at 60 mph balanced
- c A car stopping at a traffic light unbalanced
- d A duck floating on a pond balanced

- 6 a Label the force arrows on the owl and the pussy cat's boat with the names of the forces.



- b If the owl flew away, how would the forces on the boat change?
The weight and the upthrust would be smaller.
- c Would the boat be higher or lower in the water without the owl?
higher
- d If the boat started to leak, how would the forces change?
They would get bigger.
- e What would happen when the boat was filled with water?
It would sink.

7 Look at this forcemeter. It measures the weight of different masses.

a What is the weight of the bag hanging on the forcemeter?

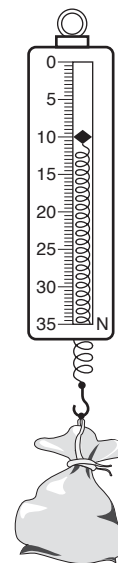
.....10..... N

b What is the mass of the bag hanging on the forcemeter?

.....1..... kg

c What mass would the bag be if the forcemeter read 25 N?

.....2.5 kg.....



8 Fill in the answers to find out the name of the car that went faster than the speed of sound.

1 The unit of force

2 What happens to an elastic material when a weight is hung on to it

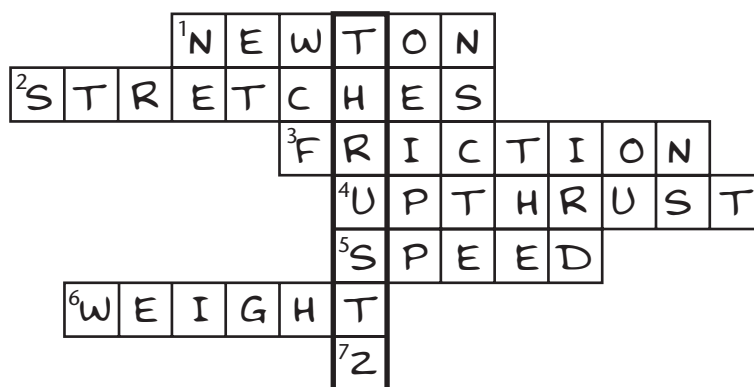
3 A force that slows things down

4 A force that makes things float

5 How fast an object moves

6 The force of gravity on your mass

7 How many hours it takes to drive 100 miles at 50 mph



The name of the car is

.....Thrust 2.....

9 Circle the things where very little or no friction is wanted.

Underline the things where high friction is needed.

